Buffer Problems (you will need to look up K_a values)

A buffer is prepared by adding 20.0 g of acetic acid and 20.0 g of sodium acetate to enough water to form 2.00 L of solution. Determine the pH of the buffer.

What is the ratio of HCO_3^- to H_2CO_3 in blood of pH 7.4? What is the ratio of HCO_3^- to H_2CO_3 in an exhausted marathon runner whose blood pH is 7.1?

A buffer contains 0.12 mol of propionic acid and 0.10 mol of sodium propionate in 1.50 L. What is the pH of this buffer? What is the pH of this buffer after the addition of 10.0 mL of 0.10 M NaOH?

You have to prepare a pH 3.50 buffer, and you have the following 0.10 M solutions available: formic acid, acetic acid, phosphoric acid, sodium formate, sodium acetate, and sodium dihydrogen phosphate. Which solutions would you use? How many mL of each solution would you use to make 1.0 L of the buffer?